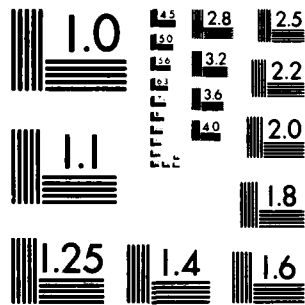


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1 FEBRUARY 1982

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**SOVIET CIVIL DEFENSE AND
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AN END TO THIS M.A.D.NESS?**



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**STRATEGIC STUDIES INSTITUTE
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Carlisle Barracks, Pennsylvania**

**SOVIET CIVIL DEFENSE AND
THE CREDIBILITY OF THE US DETERRENT:
AN END TO THIS M.A.D.NESS?**

by

John M. Weinstein

1 February 1982

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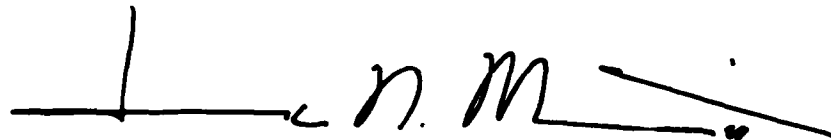
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FOREWORD

This memorandum examines the impacts of the Soviet Union's civil defense programs upon deterrence and the strategic balance. The author describes the origins and nature of the Soviet civil defense capability. Soviet civil defense is then related operationally and conceptually to Soviet strategic doctrine. Upon evaluating the probable effectiveness of the Soviet Union's civil defense capability, the author concludes that it does not affect significantly the US-USSR strategic balance. Furthermore, the protection provided by their civil defense programs does not diminish the Soviets' genuine revulsion of nuclear war or their calculations of its cataclysmic consequences.

The Strategic Issues Research Memoranda program of the Strategic Studies Institute, US Army War College, provides a means for timely dissemination of analytical papers which are not constrained by format or conformity with institutional policy. These memoranda are prepared on subjects of current importance in strategic areas related to the authors' professional work.

This memorandum was prepared as a contribution to the field of national security research and study. As such, it does not reflect the official view of the College, the Department of the Army, or the Department of Defense.

A handwritten signature in black ink, appearing to read 'J. N. Merritt', is written over a horizontal line. The signature is stylized with a large 'J' and a prominent 'M'.

JACK N. MERRITT
Major General, USA
Commandant

BIOGRAPHICAL SKETCH OF THE AUTHOR

DR. JOHN WEINSTEIN is an Assistant Professor of Political Science at Kennesaw College in Marietta, Georgia. Currently, he is a Visiting Research Professor at the Strategic Studies Institute, US Army War College. He earned his bachelor's degree in political science from Emory University, and his master's degree in political science and Ph.D. in political science—international relations from the University of Florida. Dr. Weinstein's essays on strategic policy and Third World development have appeared in *Parameters*, *Korea and World Development*, *Commentary*, *Military Intelligence*, *Studies in Comparative International Development*, and other professional publications.

SUMMARY

The achievement by the Soviet Union of strategic parity with the United States, the problems of the SALT process, increasingly accurate strategic systems, and numerous other developments have focused, with renewed interest, much concern on defensive considerations.

Viewed within the context of the massive and increasing military expenditures of the Soviet Union, the deployment of certain tactical and strategic systems, continuing research and development programs with counterforce applications, and an opportunistic foreign policy, some analysts interpret the intent and capability of the Soviet Union's civil defense programs as providing the means to blackmail the United States on any one of a number of vital interests or even go to war with us. Such a dire threat is made credible by the hypothesized asymmetry of destruction that would result from nuclear war. The Soviet civil defense programs might allow that state to emerge relatively unscathed from a nuclear war while for the United States, destruction would be complete. Consequently, some argue that the United States must implement a massive civil defense program as part of a drive toward the re-establishment of credible and real deterrence.

There are numerous problems, however, that limit the effectiveness of the Soviets' civil defenses and must be considered lest their defensive capabilities be overstated. The Soviet population is highly concentrated within a relatively small number of urban centers and evacuation plans, never practiced on a large scale, are bedeviled with transportation, supply, climatic uncertainties, and shelter problems. Hence, Soviet civil defense would be unable to prevent massive and unacceptable population losses in a major attack.

Furthermore, the high concentration of Soviet industry within a few major complexes, the inability to harden industrial sites effectively against direct attack, the primitive state of Soviet transportation, and myriad problems suggest that the Soviet economy would be ravaged in a nuclear war and that prospects for postattack recovery would be, at best, slim.

These problems, in conjunction with the facts that a Soviet civil defense directive would put US strategic forces in an alert posture (thereby enhancing their destructive capabilities) and that the

United States could wreak unacceptable physical damage upon the Soviet Union in a retaliatory strike attest to the continued credibility of the American deterrent.

Apart from the physical destructiveness of America's nuclear forces, deterrence is strengthened by additional serious problems for the USSR that would result from a nuclear war, its civil defenses notwithstanding. First, a major disruption of the centralized system of communication and political control might well jeopardize the continued internal political hegemony of the CPSU, especially in light of increasingly nationalistic and centrifugal attitudes of many of the Soviet Union's non-Russian nationalities. Second, and related, is the geographical coincidence of Soviet ICBM installations, major Soviet industrial centers, and concentrations of ethnic Great Russians. Even in an American counterforce strike, ethnic Russians would perish in numbers far greater than their current (and declining) percentage of the Soviet Union's population (52 percent). It is likely that a nuclear exchange would disrupt and possibly terminate Russian control over the state political and military apparatuses, thereby threatening the continued existence of the multinational Soviet empire. Finally, the continued allegiance of Warsaw Pact members to the Soviet Union and the latter's control over the former would certainly be called into question in the event of nuclear war. Hence, a nuclear exchange with the United States would result very likely in great physical suffering and an end of superpower status for the Soviet Union.

Civil defense in the Soviet Union serves a number of political and ideological functions and it is quite consistent with the Soviet concept of deterrence. It should not be interpreted to prove that the Soviet Union does not subscribe to deterrence as a means of avoiding war with the United States or that it is no longer deterred. The Soviet Union is still deterred by the substantial flexibility and capability of the US nuclear arsenal which is able to mitigate any marginal benefits of the Soviet civil defense program. It would be too costly economically and politically and of marginal value militarily for the United States to duplicate the Soviet Union's civil defense programs.

**SOVIET CIVIL DEFENSE AND
THE CREDIBILITY OF THE US DETERRENT:
AN END TO THIS M.A.D.NESS?**

In a broadcast on October 1, 1939, Winston Churchill referred to the inscrutability of the Soviet Union noting that "Russia is a riddle wrapped in a mystery inside an enigma." Discussions pertaining to the intentions, responsibilities, and goals of the Soviet state traditionally have been characterized by widely divergent interpretations and policy prescriptions¹ and there is little reason to believe that a permanent consensus is likely to develop in the near future.

The divergence of analyses regarding Soviet-American relations takes on crucial importance in the area of strategic relations. Cycles of hostility and detente have occurred since the end of World War II and it is apparent that Soviet-American relations have happened upon times of heightened suspicions and hostility in the last few years.

Ever since the alternate 1976 (Team B) National Intelligence Estimate was leaked to the public, there has been an intensification of the debate regarding the meaning of the massive defense expenditures of the Soviet Union. Citing (1) massive and increasing defense expenditures during a period of reductions in the rate of US military expenditures, (2) threatening tactical and strategic research

and development programs, (3) recent international adventures, and (4) the deployment of highly accurate counterforce weapons systems, the members of Team B² and others such as Leon Goure and Major General George Keegan (retired Chief of Air Force Intelligence) have drawn sinister conclusions regarding the direction of the Soviet Union's strategic program and Soviet intentions vis-a-vis the United States.

In general, these individuals contend that the Soviets view nuclear war with the United States as (a) an extension of politics; (b) not qualitatively different than conventional war; (c) inevitable or, at least, highly likely; and therefore (d) thinkable; and (e) winnable. Let us examine briefly each of these positions so that we may appreciate their alleged cumulative effects upon the USSR-US strategic relationship.

HYPOTHESIZED SOVIET VIEWS ON NUCLEAR WAR WITH THE UNITED STATES

Nuclear War with the United States is an Extension of Soviet-American Political Relations. The United States has believed traditionally that a distinction exists between diplomacy and politics on one hand and war on the other. War could not be invoked until diplomacy had been proven incapable of reconciling differences of national interests or preventing an attack. This artificial distinction between politics and war is naive and particularly unsuitable for dealing with the Soviet Union³ because the Soviets recognize no such artificial distinction. They view war as another option to be used in the pursuit of their national interests. The writings of Lenin support this view.

With reference to wars, the main thesis of dialectics...is that war is simply the continuation of politics by another (i.e., violent) means. Such is the formula of Clausewitz, one of the greatest writers on the history of war, whose thinking was stimulated by Hegel. And it was always the standpoint of Marx and Engels, who regarded any war as the continuation of the politics of the powers concerned.⁴

More recent support for this view was furnished in November 1975 in *Communist of the Armed Forces*, an important military journal, which stated: "The premises of Marxism-Leninism on war as a continuation of policy by military means remains true in an atmosphere of fundamental changes in military matters."⁵

Nuclear War is not Qualitatively Different Than Conventional War. In *The Armed Forces of the Soviet State*, the late Marshal Grechko classified wars as falling into one of several categories: (a) war between states (coalitions) of two contrary social systems—capitalist and socialist; (b) civil wars between the proletariat and the bourgeoisie; (c) wars between imperialist states and peoples of colonial states fighting for their freedom; and (d) wars among capitalist states.⁶ What's important here is that his classifications were derived from ideological, social, and economic considerations. He did not make distinctions such as conventional versus nuclear war or strategic versus limited or tactical war.

More recently, the *Communist of the Armed Forces* stated:

The attempt of certain bourgeois ideologists to prove that nuclear missile weapons leave war outside the framework of policy and that nuclear war...ceases to be an instrument of policy and does not constitute its continuation is theoretically incorrect and politically reactionary.⁷

Nuclear War is Inevitable or Highly Likely. President Brezhnev has observed that he is convinced that wars and acute international crises are not things of the past.⁸ A *Kommunist* editorial in 1970 noted that the Soviet policy of peaceful coexistence did not preclude international struggle:

The policy of peaceful coexistence in its Leninist understanding signifies neither the preservation of the social or political *status quo*, nor the moderation of the ideological struggle. It has facilitated...the development of the class struggle against imperialism inside individual countries as well as on a world scale....⁹

The continuation of capitalist-socialist competition will result according to Soviet ideology in the inevitable victory of the latter system. Before the conclusion of this struggle, the Marxist-Leninist doctrine asserts that the capitalists are likely to try to prevent their inevitable collapse with one cataclysmic throw of the nuclear dice. President Brezhnev observed that "Marxist-Leninists have no illusions about the antipopular essence of imperialism and its aggressive intentions."¹⁰ Marshal Grechko, more to the point, noted: "Not wishing to reckon with the lessons of history, imperialist reaction seeks a way out in various kinds of adventurism and provocations, and in the direct use of military force."¹¹ Hence, war is likely to come (not due to Soviet aggression since the

superiority and appeal of their social system makes unnecessary the need to resort to force) as a result of imperialist reaction.

Nuclear War is Thinkable. Henry Kissinger suggested that "The traditional mode of military analysis which saw in war a continuation of politics but with its own appropriate means is no longer applicable."¹² Kissinger's analysis was predicated upon the recognition of the unprecedented destruction and suffering that would attend a nuclear exchange.

Can we be certain that the Soviets regard nuclear war as unthinkable as does the United States? Richard Pipes reminds us that the Soviets experienced sixty million fatalities, half of them self-inflicted, during Stalin's reign. He suggests that Soviet leaders might not cringe from a nuclear war they feel they can win if they can limit their fatalities to the low tens of millions.¹³ This is especially true if the Soviet civil defense system is able to protect all but a small percentage of the Soviet populace¹⁴ and allow economic recovery from a US retaliatory strike within no more than 4 years.¹⁵

Nuclear War is Winnable. General Keegan was convinced that the Soviet Union was preparing for a nuclear strike at the United States with the belief that it would emerge with some margin of advantage.¹⁶ These beliefs were supported in general by Pipes¹⁷ and Goure who cited the following Soviet editorial: "There is profound erroneousness and harm in the disorienting claims of bouregois ideologies that there will be no victor in a thermonuclear world war."¹⁸

The Soviets' victory would be achieved through their attainment of nuclear superiority, a first strike against US counterforce targets, and to a large measure their civil defense program upon which they spend more than \$2 billion annually.¹⁹ This program is designed to protect the political infrastructure, economic/industrial facilities, and cadres of skilled technicians who will allow the USSR to recuperate faster than the United States from a nuclear exchange.

SOVIET CIVIL DEFENSE AND ITS EFFECT UPON THE US DETERRENT

The Soviet Union's civil defense program is more than 30 years old and is an important aspect of the Soviet Union's military planning. The strengths and weaknesses of the program have been the topics

of extensive debate by many analysts.²⁰ The specific structure, plans, and capabilities of the Soviet civil defense program will be discussed and evaluated below. Now, let us consider the possible dangerous effects that their program is likely to have upon Soviet-American deterrence and the strategic nuclear balance.

The Concept of Deterrence. Since the achievement by the Soviet Union of nuclear parity with the United States in the late 1960's, the superpowers' strategic nuclear balance has relied upon nuclear deterrence to prevent the outbreak of nuclear war. The concept of deterrence rests upon the assured ability of each superpower to survive an attack by the other with enough weapons to inflict such unacceptable damage upon the aggressor that "the living would envy the dead" as Khrushchev once observed. Although analysts may and do disagree among themselves as to *how much* destruction is "unacceptable," the population and industrial criteria specified by Secretary of Defense Robert MacNamara in 1967 testimony before the Senate Armed Services Committee is appropriate. He speculated that a US retaliatory strike against the Soviet Union which destroyed one-third to two-thirds of their industry and killed 20-25 percent of the Soviet population "would certainly represent intolerable punishment to any industrial nation and would thus serve as an effective deterrent."²¹

Mutual assured destruction (known by its acronym MAD) relies upon the condition that each side's *offensive capabilities surpass the defensive capabilities of its adversary*. In other words, deterrence is stable as long as each side's population and industry remain vulnerable to the destructive force of the other. Consistent with this formulation, the United States and the USSR concentrated upon the development of invulnerable destructive forces such as ICBM's in hardened silos, SLBM's, long-range bombers, and MIRVed warheads during the last two decades. Each side spent relatively less effort and funds on defensive capabilities lest the balance of mutual vulnerability of the respective populations be upset. The United States allowed its air defenses (interceptors and conventional surface-to-air missiles) to languish. In 1972 when the Soviet Union joined the United States in signing the ABM treaty (which limited the deployment and testing of these defensive weapons), there was much joy in the West. The signing by the Soviets was interpreted by many to mean that they subscribed to the concept of deterrence as the most rational means of peace and superpower survival.

As has been noted above, however, this confidence has been questioned by those who point to the Soviets' expansion of their offensive capabilities and their strides in civil defense. Since the USSR is currently at a level of parity with the United States *and* the Soviets show no sign of moderating their offensive or defensive programs, it has been concluded that they no longer subscribe to the concept of deterrence. Rather, the Soviets seek nuclear superiority with the aim either of launching a strike at the United States²² or forcing the United States to make costly political concessions²³ or suffer as many as 80-140 million fatalities.²⁴

The Soviet civil defense programs threaten the deterrent balance by upsetting the balance of mutual population vulnerability because under certain conditions, Soviet fatalities might be limited to the low "tens of millions."²⁵ Table I demonstrates projected asymmetries of destruction for the United States and the USSR in several warfighting scenarios.²⁶ What is important to note is that these asymmetries destabilize the US-USSR strategic balance because they suggest that the Soviets might emerge relatively unscathed from a nuclear war with the United States.

Potential Strategic Implications of Soviet Civil Defense. John Collins identifies several important implications that stem from the inability of the United States to protect its citizens or production base from nuclear assaults.²⁷ First, the nuclear umbrella that the United States provides to its allies would inspire less confidence since the United States might be less likely to sacrifice New York to save Paris or Bonn from Soviet occupation. Second, the demise of America's strategic nuclear umbrella would mean that tactical nuclear weapons would "no longer substitute for conventional strength as credibly as they did in the past."²⁸ The disintegration of NATO and other US alliance systems would be a major blow to the security of the United States and realize one of the Soviet Union's principal postwar objectives. A third implication identified by Collins would be increased danger to the United States from small powers and special interest groups (e.g., terrorists) who might benefit from the proliferation of nuclear technology and weapons and employ nuclear blackmail. Finally, defensive inferiority might subject the United States to Soviet coercion with few alternatives to acquiescence, irrespective of our raw destructive power.

These thoughts have not fallen upon deaf ears in the Executive Branch. In 1974, Secretary of Defense Schlesinger argued that the

Case	OTA attack cases	Population posture	Percent of national fatalities	
			Low range	High range
2	Small attack on U.S.		(not available)	
	Small attack on U.S.S.R.		(not available)	
3	Attack on U.S. ICBMs	In-place	1-3	8-10
	Attack on Soviet ICBMs	In-place	< 1	1-4
	Attack on U.S. CF	In-place	< 1-5	7-11
		Evac.	—	5-7
	Attack on Soviet CF	In-place	1	1-5
		Evac.	1-2	
4	Attack on U.S. CF, OMT, & ECON	In-place	35-50	59-77
		Evac.	10-26	32-43
	Attack on Soviet CF, OMT, & ECON	In-place	20-32	26-40
3 (excursion)	Attack on U.S. CF and OMT	In-place	9-14	
		Evac.	14-23	26-27
4 (excursion)	Attack on Soviet CF and OMT	In-place	—	18-25
		Evac.	15-17	22-24
		Evac.	6-9	
4 (excursion)	Attack on U.S. CF, OMT, ECON, and population	In-place	—	60-88
		Evac.	28-40	47-51
	Attack on Soviet CF, OMT, ECON, and population	In-place	—	40-50
		Evac.	22-46	

NOTE: CF = counterforce targets. OMT = other military targets. ECON = economic targets.

Source: Office of Technology Assessment, *The Effects of Nuclear War*, p. 140.

Table I. OTA Attack Cases—Executive Branch Fatality Estimates.

United States should have a similar option (compared to Soviet civil defense) to protect ourselves from any attempted Soviet intimidation by evacuating our urban populations during a crisis and to reduce American fatalities if deterrence should fail.²⁹ Brigadier General James M. Thompson of the Office of the Assistant Secretary of Defense (International Security Affairs) testified on April 18, 1978 to the Culver Subcommittee (of the Armed Services):

...we recognize that an increasingly effective Soviet civil defense program, in conjunction with other Soviet strategic military programs, could in time cast doubts upon our ability to meet our strategic objectives. Moreover, whatever the actual or potential effectiveness of the Soviet program, we must be concerned about perceptions of Soviet superiority based on marked asymmetries in civil defense efforts....

In sum, although civil defense in the past has not played a major role in national strategic policy, it certainly does deserve our attention. Civil defense policies need to be considered in the context of their peacetime effect on perceptions, possible deterrent effect, real dollar costs, and of course, possible effect on reducing casualties and enhancing recovery in the event that deterrence should fail. Civil defense programs thus cannot be considered as independent of the rest of our strategic nuclear programs.³⁰

More recently, Secretary of Defense Brown, noted:

As you know, the Soviets have shown great interest and considerable activity in this [civil defense] field. While I do not believe that the effort significantly enhances the prospects for Soviet society as a whole following any full-scale nuclear exchange, it has obviously had an effect on international perceptions, particularly in contrast to our small and static civil defense programs. For that reason alone I believe at least modest efforts on our part could have a high payoff.³¹

The recent promulgations of Presidential Directives 41 and 58, which streamlined the organizational structure of America's civil defense and committed the country to crisis relocation planning, are evidence that the subject is being taken more seriously in the United States.³²

Before the United States subscribes to the warnings of Keegan, Pipes, and Collins and accepts the recommendations of US civil defense advocates, more critical analyses of the effectiveness of the Soviet civil defense program, Soviet views of deterrence, and strategic vulnerabilities are in order. Now let us address these important considerations.

THE EFFECTIVENESS OF SOVIET CIVIL DEFENSE

The assertions of an effective Soviet civil defense and its destabilizing impacts upon deterrence have not gone unchallenged. Numerous individuals³³ and agencies³⁴ have taken strong exception to the findings of Goure, Jones, and others.³⁵ These counterarguments focus upon (a) the limited effectiveness of the Soviet civil defense program; (b) the continued ability of the United States to deter the Soviets; and (c) the misunderstanding of Soviet intentions, interpretations of deterrence, and political realities. Let us review each of these areas in turn.

THE LIMITED EFFECTIVENESS OF SOVIET CIVIL DEFENSE

The Protection of People. The protection of all citizens is considered of paramount importance to Soviet civil defense planners.³⁶ The CIA notes that there is sufficient blast resistant shelter space for the Soviet leadership at all levels.³⁷ However, these shelters, which are designed to protect approximately 110,000 government and party leaders, are vulnerable to direct attack. The shelters that are designed to protect workers at key economic installations would also be vulnerable to direct attack. Furthermore, estimated Soviet ability to protect 12 to 24 percent of the total work force or 24 to 48 percent of the essential work force that would be left behind in the event of crisis evacuation assumes that each person in a shelter would require only 1 to .5 square meters. This space requirement is inadequate according to most in-depth analyses of survival requirements.³⁸ The Oak Ridge Laboratories also maintain that the shelters' ventilation systems are the most vulnerable aspect of the Soviet shelter program and that even if a shelter were not destroyed by a nuclear blast, its inhabitants would suffocate or die of heat exposure.³⁹ Starvation would become a severe problem if shelter were required for more than a few days. Chronic Soviet food shortages, food distribution snarls, and the fact that Soviet citizens buy their food from day-to-day would prevent many from bringing the requisite two weeks supply of food and water to the shelter. Even T. K. Jones, an analyst very much in awe of Soviet civil defense capabilities, concedes that urban shelters "could not help much against a US

attack designed to destroy populations.”⁴⁰ Many Soviet citizens who would be forced to build expedient shelters using “handy” material such as bricks, timber, boards, and shovels⁴¹ would face serious problems during winter when the ground is frozen, spring and summer when foodstuffs are depleted, autumn when the ground is muddy, or at night.

Goure describes elaborate evacuation plans which are to be completed within 72 hours of the order’s promulgation.⁴² The Soviets’ confidence in the effectiveness of their own evacuation plans must be limited by the fact that upon the detection of a Soviet evacuation, the United States might strike the population in transit, thereby maximizing the number of fatalities.⁴³ In the event of a Soviet evacuation, the United States would undoubtedly undertake a variety of measures (e.g., disperse our bombers and put them on airborne alert, send our subs in port to sea, order a launch on verification, etc.) that would lessen the destructiveness of a Soviet first strike and consequently increase the destructiveness of a US retaliatory strike. Furthermore, the Soviets have never practiced a full scale evacuation of a major city, used more than one mode of transportation in their limited practices, conducted a drill without a long period of preparation, or carried out several evacuation exercises simultaneously.⁴⁴

The decision to proceed with an evacuation would result in gigantic transportation problems.

...The USSR...lacks a developed highway system to connect the outlying regions to its industrial hub. Less than 250,000 miles of paved roads exist in the entire nation. No two Soviet cities are connected by a divided highway.... In addition, Soviet severe weather conditions hamper what possible road travel exists. During the winter, spring thaw periods, and autumn rainy seasons, Soviet roads are virtually impassable. The Soviets describe their situation as RASPUTITSA or roadlessness during those months.⁴⁵

The Soviet highway system, then, is more appropriate for intraurban travel and would be hard pressed to handle mass exoduses from urban areas.

In addition to motor transport, Soviet evacuation plans depend heavily upon railroads and pedestrian traffic. Most railroads in the Soviet Union are single track. To evacuate large cities with rail transportation, the Soviets would have to be sure that the trains were in their assigned evacuation locations, that they were not loaded with freight or that they were not needed to carry troops or

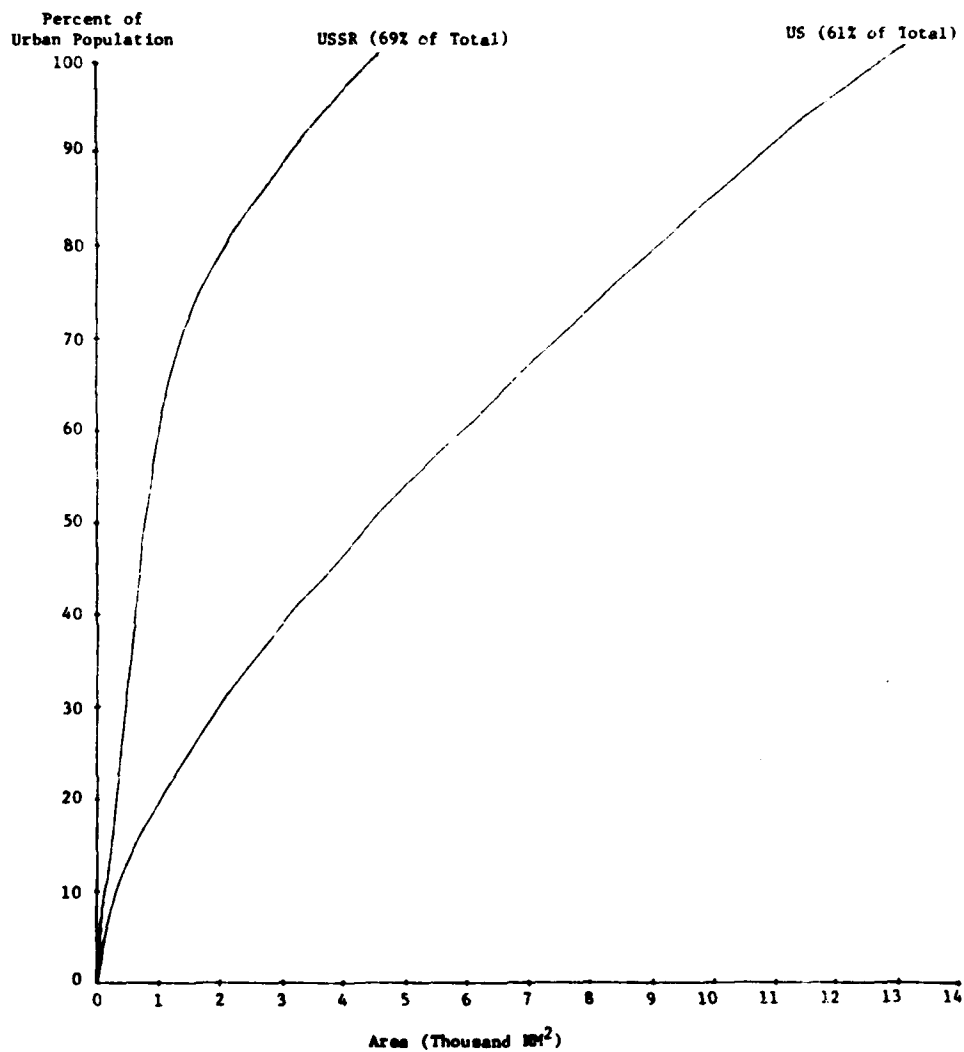
supplies to Eastern Europe. That so many logistical problems would be handled by a country whose transportation system is inefficient at best during calm and peaceful times is highly unlikely.

Soviet evacuation plans call for 17 million urban residents to walk 30 miles (1.5 mph for 20 hours) and then build expedient protection.⁴⁶ How the very young, the very old, and the sick are to make such formidable progress (while carrying two weeks worth of food, water, and supplies) is not clear. It is also important to note that the Soviet urban population, largely an apartment society, is more highly concentrated than the American urban population (see Table II). A heavy concentration of urban citizens results in certain obstacles to successful evacuation. For instance Moscow is surrounded on all sides by satellite industrial centers and Leningrad is similarly bordered on three sides and by water on the fourth. Citizens from these major population centers would face major problems evacuating to rural reception centers or areas suitable for the construction of expedient shelters. Finally, how evacuees in expedient shelters would survive higher levels of radioactive fallout that would result if the US retaliatory strike included ground bursts is unclear and seldom addressed by those who assert the effectiveness of Soviet civil defense.

A decision to evacuate their urban areas might have exactly the opposite effects than those desired by the Soviet leaders. Furthermore, such a decision would involve incredible costs, even if the United States were not to strike. It has been estimated that one week of lost production in the United States due to an evacuation would cost approximately \$90 billion.⁴⁷ The costs to the highly centralized, labor intensive and interdependent Soviet economy might be higher still.

Protection of the Economy. In spite of efforts to harden industrial sites and disperse industry,⁴⁸ the CIA and ACDA conclude that the Soviets would be unable to prevent massive industrial devastation, especially in cases where industrial installations are targetted directly.⁴⁹ Observing that "new plants have often been built adjacent to major existing plants; existing plants and complexes have been expanded in place; no effort has been made to expand the distance between buildings or to locate additions in such a way as to minimize fire and other hazards in the event of a nuclear attack; [and] previously open spaces at fuel storage sites have been filled in with new storage tanks and

US Urban Population: 101 million
USSR Urban Population: 126 million



Source: US Arms Control and Disarmament Agency, *An Analysis of Civil Defense in Nuclear War*, 1978, p. 3.

Table II. Distribution of Urban Population According to Land Area.

processing units," the CIA concludes that the Soviet Union's program for geographical dispersal of industry is not being implemented to a significant extent.⁵⁰ In fact, the value of productive capacity added to existing areas is increasing more rapidly than in new areas due to economic exigencies. This heightens the vulnerability of Soviet industry.

The CIA also notes that "little evidence exists that would suggest a comprehensive program for hardening economic installations due to the high costs and inability of such installations to survive the blasts of direct attacks or the damage that would result thereafter from fire."⁵¹ The Arms Control and Disarmament Agency concurred with this evaluation by noting that "any attempt to harden can be easily overcome by detonating weapons at lower altitudes with only a minor reduction in the 10 p.s.i. destruction capability. Future US weapons would offset 1 1/2 to 3-fold increases in hardness even if such increases could be accomplished."⁵² Therefore, it concluded that "attempts to harden above-ground facilities is a futile exercise, and that even buried facilities which are hardened cannot survive. Selected pieces of equipment could be expediently hardened to improve survival in peripheral areas; however, hardening machinery in targetted facilities would be of little use."⁵³ The Soviets themselves point out:

It is impossible to make buildings less vulnerable to a shock wave without radical structural changes that involve considerable difficulty and cost.... It is impossible to guarantee building survival in a damage area even by somewhat increasing the strength of individual structures and their components.⁵⁴

Many crucial economic and industrial facilities cannot be protected at all. These include "oil refineries, power plants, chemical storage plants, steelmaking and petroleum plants, pharmaceutical producers, component assembly factories, major truck, tractor and rolling stock manufacturers...as well as railheads and marshaling yards, major surface transshipment points and highway intersections,...and pipelines."⁵⁵ Since these targets cannot be hardened, they remain vulnerable to a US retaliatory strike. The loss of such facilities would be an indescribable blow to any nation with hopes of surviving a war as a superpower.⁵⁶

T. K. Jones laments that after absorbing a first strike, the United States would "only" be able to hit a "few thousand aim points" and not be able to inflict unacceptable damage to the Soviet

Union.⁵⁷ Soviet industry, however, is so concentrated (the key industries in the Soviet Union have more than half of their production in less than 200 plants)⁵⁸ that the United States would not need so many weapons to devastate completely the Soviet industrial structure.⁵⁹ Kemp⁶⁰ and Garwin⁶¹ maintain respectively that as few as 7 Poseidon subs (one-third the number normally on station at sea) could destroy 62 percent of the Soviet Union's industrial base and that after retargeting the surviving 10 percent of our ICBM's, we could deliver unacceptable damage to the Soviet Union. An ACDA estimate that recognizes the need for 1,300 warheads to destroy 70 percent of Soviet industry is consistent with the estimates above.⁶²

The extent of this concentration and an example of the complete destruction that would result from an American retaliation are found in Tables III and IV.

Postattack Recovery. The significant concentration of Soviet industry cited above makes T. K. Jones' prediction that the Soviet Union could recover "within no more than 2 to 4 years from a US nuclear retaliatory attack"⁶³ appear optimistic at best and downright naive and silly at worst.

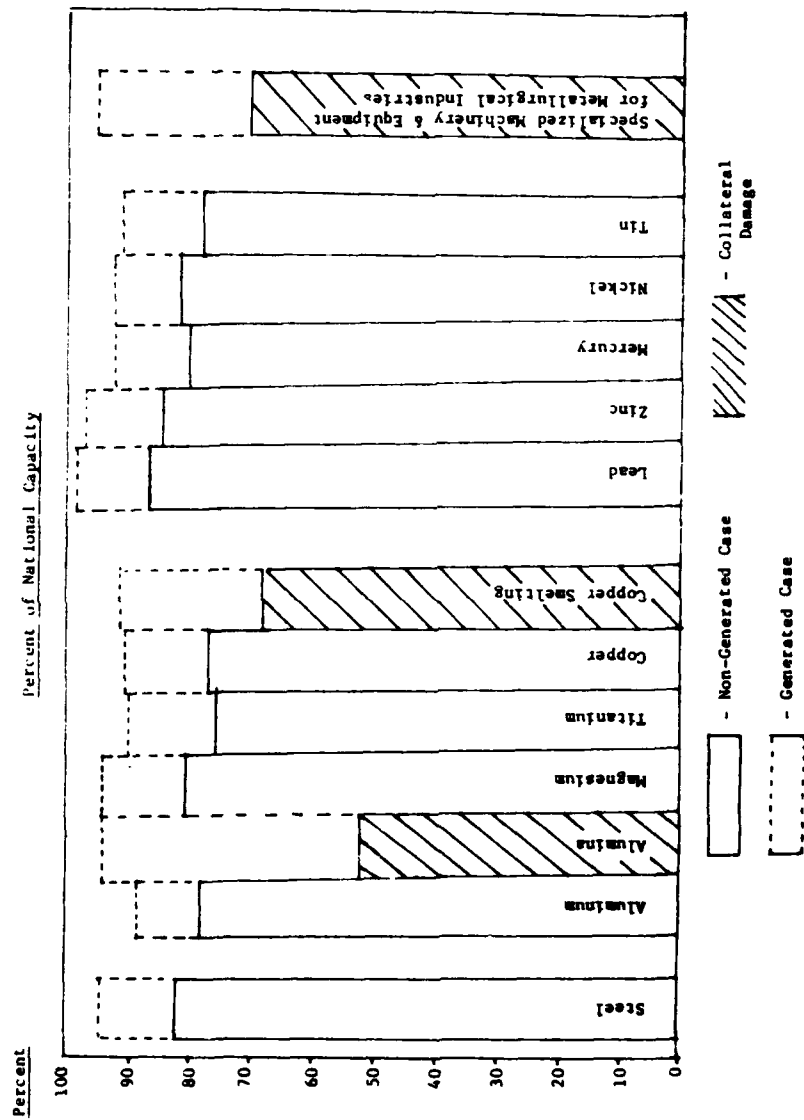
Postattack recovery depends heavily upon the capabilities to (a) rescue, feed, and care for survivors of a nuclear attack and (b) provide spare parts and energy for capital construction. Soviet recovery efforts would be hampered severely by numerous obstacles, among which are massive urban areas that will be too hot (i.e., high radioactivity) to enter for several months, widespread radiation sickness (80 percent of the Soviet population, including the evacuees, will be exposed to at least 100 roentgens of radioactivity), shortages of food (50 percent of grazing livestock would die and 30 percent of all crops would be destroyed if the attack occurred during the growing season), distribution delays (of at least 2 months after the attack), the depletion of the ozone layer that could make hazardous for several years outdoor activity beyond 30 minutes in duration, the destruction of 80 percent of all medical personnel, supplies, and hospitals, and a host of social and psychological problems.⁶⁴ Additional problems will result from the low horsepower and disrepair of Soviet heavy equipment⁶⁵ and destruction of the chemical industry upon which Soviet agriculture is heavily dependent.

The analysis above suggests the conclusions of the CIA's 1978 study which stated:

<u>Industry</u>	<u>Total Number of Facilities</u>	<u>Percent Output/From Number of Major Plants</u>
Chemical		C. 100%/25 Cities
Integrated Iron- Steel Mills	18 Mills	
Steel		60%/15 Plants
Electricity for Volga & Cen Regions	5	100%
Sizeable Petroleum Refineries	34	
Copper Refineries	8	
Lead-Zinc Refineries	6	
Automobiles	12 Cities	
Aluminum/ Alumina Factories		65%/4 Factories (all of which depend upon a fifth)
Boilermaking Plants		100%/5 Cities
Turbine- Generator Works	6	3 are in Leningrad
Diesel Engines	5 Cities	
Diesel Locomotives	5 Cities	
Electrical Trains	2 Cities	
Heat Pkg Plants	17	
Tractor Plants		80%/9 Plants
Trucks		20%/1 Plant (Kama River)
Major Shipbuilding Works	8	
Heavy Machine Producing Plants	16	
Agricultural Machine Producing Plants	15	

(Adapted from Hardt, 1976, xvii and Mathieson, 1975, 47, 63-64)

Table III. Concentration of Soviet Industry.



Source: US Arms Control and Disarmament Agency, *An Analysis of Civil Defense in Nuclear War*, 1978, p. 7.

Table IV. Damage Assessment--Primary Metals Production/Processing.

Present evidence does not suggest that in the foreseeable future there will be any significant change in the Soviet leaders' judgment that civil defense contributes to warfighting and war-survival capabilities, nor that their uncertainties about its effectiveness would be lessened. Thus we have no reason to believe that the Soviet leaders' perception of the contribution of civil defense to their capabilities for strategic nuclear conflict will change significantly.⁶⁶

Some might counter this conclusion by pointing to the disparities between projected US and Soviet population and industrial destruction and linking them to the absence of a civil defense program in this country and its existence in the Soviet Union. Such an argument confuses correlation with causation. It must be pointed out that these disparities are affected *only* to a minor extent by the Soviets' civil defense program. Rather, the disparities are due to the facts that (a) the estimates are predicated upon a Soviet first strike which would leave the United States with fewer weapons to retaliate against the Soviet Union and (b) the Soviet Union's warheads have larger yields than American warheads.⁶⁷ If the United States were to strike first, especially before or during the initiation of any Soviet civil defense measures, their casualties and destruction would be much higher,⁶⁸ perhaps as high as 100 million prompt fatalities.⁶⁹ Consequently, ACDA maintains that the Soviet Union and the United States are equally vulnerable to the other.

THE CONTINUED CREDIBILITY OF THE US DETERRENT

The ACDA and CIA studies cited above both come to the conclusion that the United States could absorb a nuclear strike from the Soviet Union and still retaliate with savage and unacceptable destruction. The ACDA finds that the US retaliation would destroy 65 to 70 percent of the Soviet Union's industry if the United States were on a normal day-to-day alert at the time of the Soviet first strike. However, if the United States were to respond from a generated alert posture, the Soviets would lose 85 to 90 percent of the industrial installations we had targetted directly and absorb 80 percent collateral damage to untargetted installations.⁷⁰ Similarly, the CIA identifies numerous measures (e.g., stretch the attack over long periods of time using submarine launched ballistic missiles, target the Soviet population specifically, and increase fallout by detonations at ground level) that would enhance the destructiveness of the US retaliation.⁷¹ Kennedy, Guertner, and

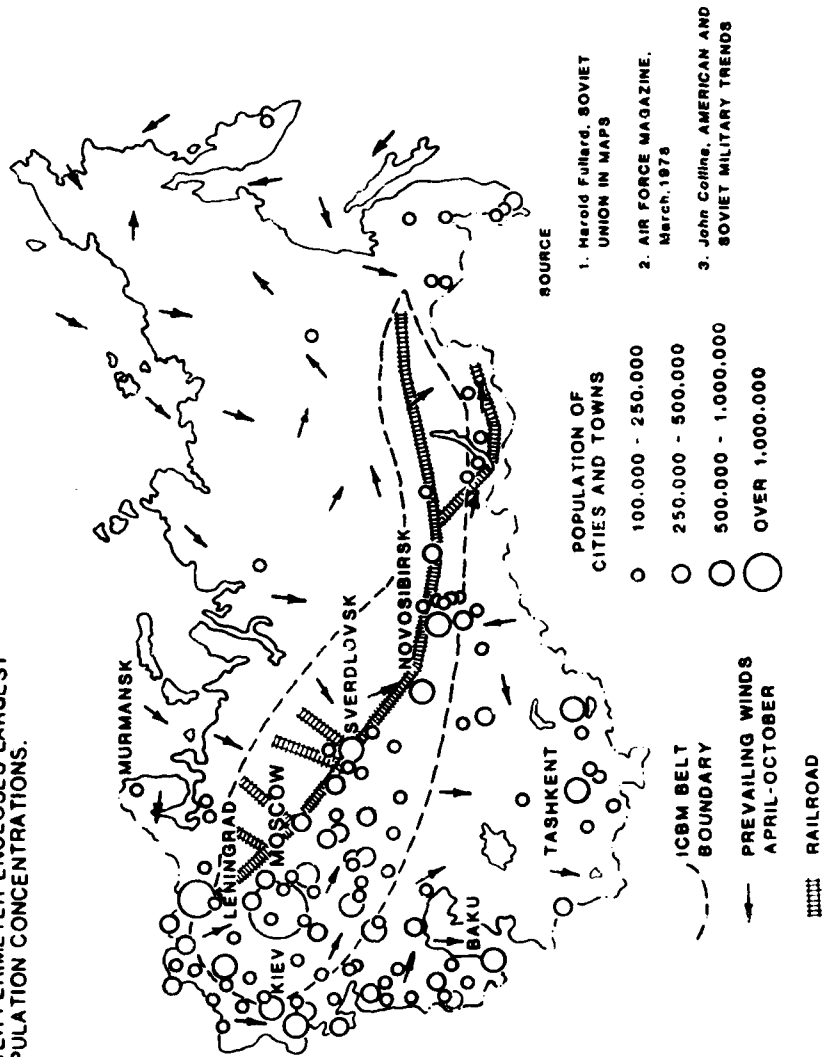
Kincade suggest these and other possibilities, uncertainties, and considerations that reinforce each other, as well as the credibility of the American deterrent.⁷² Hence, the credibility of the US deterrent is strengthened to the extent that Soviet confidence in their civil defense is called into question.

Nevertheless, Richard Pipes contends that the United States is mistaken to assume that what deters the United States would also deter the Soviet Union. He argues that the terrible carnage and physical destruction of the revolution, civil war, two world wars, and numerous purges within the last 65 years are impressed indelibly upon the memories of the Soviet leaders and have hardened them so that losses in the "low tens of millions" in a nuclear war might seem acceptable.⁷³ However, Kennedy notes perceptively that it is not reasonable to expect Soviet leaders to initiate a conflict which would kill a minimum of 10 million Soviet citizens, even though the Soviets suffered more deaths at the hands of the Germans in World War II. There is a significant difference between initiating such a war and suffering so many deaths within a few hours and having that war thrust upon you and absorbing the same number of deaths within 5 years.⁷⁴ Furthermore, the potential economic, political, and psychological disruption of nuclear war would be greater than that experienced during World War II and has been acknowledged as such consistently by Soviet political and military leaders.⁷⁵

An additional variable of great moment to the matter of deterrence is the multinational nature of Soviet society. Many analysts have described the polyglot composition of the Soviet Union, the declining percentage of the population constituted by the Great Russians and ethnic Slavs, and the ominous economic and political consequences of these developments for the Soviet polity.⁷⁶ Nevertheless, few recognize the Soviet state as multinational when the discussion turns to the matter of strategic deterrence. Ball⁷⁷ and Guertner⁷⁸ contend that this consideration is of paramount importance in Soviet strategic calculations. Recognizing the geographical coincidence of the majority of ICBM fields, key industrial installations, and Great Russian concentrations, Guertner observes that an American counterforce strike against the Soviet Union would affect most seriously the Great Russians (see Maps 1 and 2). Great Russians would perish in numbers even greater than their percentage (52 percent) of the total

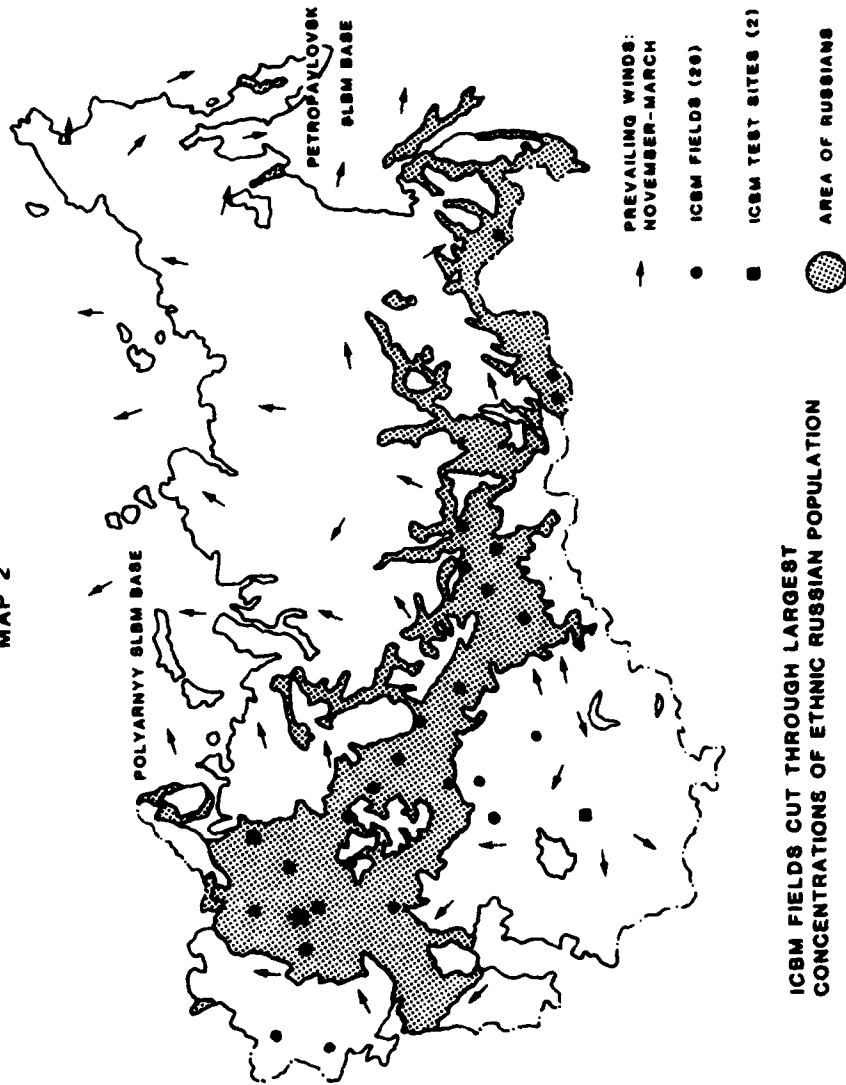
MAP 1

ICBM SITES ARE ALONG MAIN WEST-EAST
RAIL LINES AND SEVERAL NORTHERN SPURS
OUTER PERIMETER ENCLOSURES LARGEST
POPULATION CONCENTRATIONS.



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(Summer 1981): 209-23.

MAP 2



ICBM FIELDS CUT THROUGH LARGEST
CONCENTRATIONS OF ETHNIC RUSSIAN POPULATION

Source: 1. Harold Fullard, Soviet Union in Maps
2. Desmond Ball, SURVIVAL, August 1980

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(Summer 1981): 209-23.

population. Whether they would be able to maintain control of the CPSU, the vast governmental, political, educational, and military hierarchies is highly questionable. Nuclear war might well usher in the decline of the Soviet Empire in light of the destruction of the infrastructures of political and ethnic control, communication, and transportation. Adam Ulam recognized this possibility even in the event of "small" nuclear war when he asked:

As to the possibility of a "small" nuclear war, the USSR has to think in political terms: against a small nuclear power she would undoubtedly emerge victorious; but could a Communist regime survive such a war? What would be the consequences of even one nuclear missile falling on Moscow and destroying the top leadership of the Party and state?"

In the previous section, the 2 to 4 year economic recovery period hypothesized by Jones was criticized as overly optimistic. Four years is not very much time for economic recovery in light of the physical destruction that the United States could bring to bear upon the Soviet Union. However, 2 to 4 years may be an eternity in the political dimension. During this brief period of incapacitation, could the Soviets be confident that they could maintain the integrity of the Soviet Union? Might the Chinese seize vast segments of the Eastern Empire? Is it likely that the Soviet Moslem population might reaffirm religious and territorial ties to a Pan-Moslem movement? Is secession by the Ukrainians or the Baltic republics possible? Finally, would the East Europeans be inclined to maintain their political and economic ties to the Soviet Union? If the Russian leaders entertain uncertainties such as these, nuclear war necessarily would be viewed as counterproductive to their most basic national interest: the survival of the Soviet state. If such a view is held, the Soviets may be effectively deterred.

SOVIET CIVIL DEFENSE AND SOVIET VIEWS OF DETERRENCE

If, in the final analysis, Soviet civil defense efforts are futile or only marginally effective, why do the Soviets pay so much attention to this costly program? Continued high Soviet expenditures in this area while their economy is in serious trouble may lead one to ominous speculations about Soviet intentions. Is it possible that the Soviets are preparing for a first strike against the United States or

planning to combine their growing offensive strength with their civil defense capability to coerce the United States into making humiliating and injurious concessions at the brink of nuclear war?⁸⁰ Such arguments imply that the Soviets reject the concept of deterrence and crisis stability.⁸¹ Richard Pipes summarizes Soviet strategic doctrine as based upon (a) the rejection of deterrence, (b) a Leninist view of the inevitability of war between capitalism and communism, (c) weapons superiority rather than sufficiency, (d) offensive action rather than retaliation, and therefore, (e) the belief in and pursuit of victory in strategic war.⁸² Whether one attributes these elements to Soviet malevolent intentions, ideological fanaticism, or a perception of American weakness, the policy implications for the United States are clear: arms control is viewed suspiciously and our only source of aid and comfort from the enemy lies in nuclear superiority and the willingness to stand eyeball to eyeball with the Soviets to demonstrate our resolve.

The advent of nuclear weapons resulted in a significant departure from the traditional Leninist views that war was inevitable between capitalism and communism, that war was a feasible policy instrument, and that the socialist states' victory was foreordained. By the mid-1950's, Malenkov and Khrushchev were speaking of peaceful coexistence and the need to avoid war inasmuch as it would result in the utter destruction of the Soviet and US societies.⁸³ Since then, the theme of avoiding nuclear war has been reiterated by numerous Soviet political and military leaders.⁸⁴

The Soviets do not reject the necessity of achieving a stable deterrence to prevent war between the Soviet Union and the United States. Nor do they fail to recognize the existence of mutual deterrence.⁸⁵ What they do reject is the American belief in the ability to control and wage nuclear war. Sophisticated concepts for limited war, in the Soviets' view, destabilize the strategic balance and raise the likelihood of nuclear conflagration.⁸⁶

Another significant divergence between the US and Soviet views of deterrence stems from the means employed by each side. Ross and Collins note that American nuclear deterrence is based upon severely punishing an aggressor once deterrence fails. The Soviets do not take such a fatal and passive view. Their view of deterrence is based upon the denial to the enemy of any possibility of military success rather than the restriction of military retaliation to punitive reprisals.⁸⁷ Ross maintains that:

The fact that there is a general distinctiveness between Soviet strategic nuclear doctrine and American deterrence perspectives...should not be taken to mean that deterrence is not the Soviet military's primary mission."

Kennedy also develops this point while noting that current Soviet strategic doctrine is not unlike US doctrine during the 1950's and early 1960's.

In other words, the Soviet elites have rejected specific American conceptualizations of deterrence. Instead they have concluded that deterrence of nuclear conflict is best served by strategic doctrines and carefully prepared strategic forces which promise to deny a potential aggressor any hope of success.... Such a deterrent demands not only an active capacity to attack the enemy's warfighting capability, but *also to limit the damage inflicted on oneself through home defense measures.* [emphasis added]"

The punishment versus victory denial difference between US and Soviet strategic doctrines accounts in part for differences in the superpowers' force structures. The punishment orientation of American deterrence is finite in that the United States only need identify specific Soviet targets whose loss would constitute unacceptable destruction and then deploy some calculable number of weapons with some acceptable probability of success. While one may take issue with the number of targets which must be destroyed to achieve unacceptable destruction or the number of warheads to be aimed at each target, the estimates of American weapons' requirements (and the continued credibility of the US deterrent) exhibit remarkable stability over time.⁹⁰

On the other hand, the Soviet Union's victory denial strategy is much less explicit and delimited. Hence, there is no consensus regarding "how much is enough." Furthermore, the Soviet Union's history of numerous invasions and terrible destruction at the hands of its enemies explains much of that country's preoccupation with defense and its predisposition to embrace nuclear overkill and superfluidity in answer to the question posed above. Marshal Malinovsky affirmed this attitude in 1961 when he said: "We do not want to find ourselves in the position in which we were in 1941. This time we shall not allow the imperialists to catch us unaware."⁹¹

Further substantiation of the Soviet fear of invasion and the role of civil defense in the victory denial strategy is provided in the following quotations:

Marxists-Leninists have no illusions about the antipopular essence of imperialism and its aggressive intentions."²

L. Brezhnev

Not wishing to reckon with the lessons of history, imperialist reaction seeks a way out in various kinds of adventurism and provocations, and in direct use of military force."³

Marshal Grechko

The following statement in *Red Star* (February 1978) by General A. Altunin, head of the Soviet civil defense program, also places these points in sharp focus.

...it would be strange to deny that certain measures to improve [Soviet civil defense] are being carried out.

The main purpose of our civil defense is, together with the armed forces, to ensure the population's defense against mass destruction weapons and other means of attack from a likely opponent. By implementing defensive measures and thoroughly training the population, civil defense seeks to weaken as much as possible the destructive effects of modern weapons....

We state unequivocally...the USSR's civil defense has never threatened anybody and threatens nobody, poses no danger for Western countries and moreover does not and cannot upset the Soviet-American balance of forces. [emphasis added]"⁴

Besides the Soviet views that damage limitation is integral to deterrence and that capitalism might seek to reverse the course of history through armed conflict, there are other explanations of the Soviets' attention to civil defense that do not presuppose Soviet first strike intentions. The Red Army has been glorified in Soviet history and it is very important in the scheme of domestic politics: "...a deterrent posture that calls for war-winning and damage-limiting capabilities is consistent with traditional views of the military missions of ensuring success in warfare and protecting populations and government structures."⁵ In this light, civil defense may be viewed as a concession to a popular and powerful domestic political actor.

Ideological and other domestic considerations also affect the Soviet preoccupation with civil defense. An active civil defense program helps to maintain order at home. It bolsters faith that the CPSU and government watch over and protect the citizenry; it is

consistent with the Leninist principle that the vanguard of the proletariat leads people and shapes destiny rather than accepts passively the vicissitudes of the future; and it reinforces the garrison state mentality. This last function recognizes that people are more willing to make sacrifices for the state when they perceive an external threat. The importance of generating faith in the government, party, and army, and the willingness of citizens to make sacrifices for the state are identified by Marshal V. D. Sokolovsky.

The people must be deeply convinced of the indestructible unity of the countries of the socialist camp, of the wise leadership of the Communist and Workers' Parties, of the economic might of the Soviet Union. It is necessary to instill in the people a belief in the might of our Armed Forces and love for them.⁹⁶

A final political consideration, already discussed, pertains to the Great Russians and the CPSU's worries about continued control which might be tenuous if a nuclear strike were to destroy the government's centralized leadership structure.

It has been noted above that the Soviet Union does not place much confidence in limited war scenarios with the United States. Nevertheless, the Soviet Union must consider the possibility of strikes of a more limited nature from China, England or France.⁹⁷ The ACDA and CIA studies maintain that civil defense would not allow the Soviet Union to escape massive destruction from a major strategic exchange with the United States. However, Soviet civil defense preparations might offer feasible protection from a more limited Chinese or European strike.⁹⁸ To the extent that civil defense is viewed as appropriate only against a limited exchange, the US limited war scenario may indeed contribute to the Soviets' perceptions of civil defense as efficacious!

WHERE DOES THE UNITED STATES GO FROM HERE?

Four major themes have been advanced to this point. The first is that the Soviet Union's force structure and strategic doctrine do not eschew deterrence. Second, the Soviets are likely to continue to subscribe to the goal of a stable deterrence in the future, even if they pursue this goal through different means than the United States.⁹⁹ Third, the Soviet Union's civil defense program cannot

make a significant contribution to that country's warfighting or war-survival capabilities. Therefore, the civil defense program does not have the destabilizing effects upon the strategic balance or the Soviet Union's perceptions of the strategic balance as Goure, Scott, Jones, and others have argued. Finally, America's deterrent remains potent and adequate to deter the Soviet Union.

Several policy conclusions and recommendations may be inferred from these themes. The first is that while we recognize the Soviet Union as a powerful country whose national interests and behavior may be at dangerous variance to our own, we should not overreact with an elusive, expensive, dangerous, and ultimately futile quest for nuclear strategic superiority. Therefore, it is in the best interests of the United States to continue the pursuit of an equitable strategic arms control agreement with the Soviet Union.

The second recommendation is that the United States not attempt to duplicate the Soviet civil defense program. Most of the problems that bedevil the Soviets would also apply to the United States¹⁰⁰ although the United States would enjoy certain advantages by virtue of its superior rural infrastructure, decentralization, and highly developed transportation/communications network.¹⁰¹ Nevertheless, the fact remains that each superpower is equally vulnerable to the strategic forces of the other, its civil defense efforts notwithstanding.¹⁰²

Apart from questions of technical and economic feasibility, one must address the point that a shelter-centered society would constitute a wholly new departure from US history and the American psyche. Washow, in a perceptive essay which continues to hold valuable insights two decades after its publication, identifies numerous obstacles that would make an extensive civil defense program infeasible and unattractive to a democratic society. A partial inventory of Washow's arguments follows:¹⁰³

1. A successful civil defense program would require a gigantic bureaucracy and number of trained cadres. These cadres would demand unquestioning obedience. The Orwellian implications are unprecedented and probably unacceptable to American society.

2. A large proportion of the civilian population would have to be maintained in a high state of readiness. This could only be accomplished by virtue of a continuing emphasis of the Soviet threat. Such an emphasis might exacerbate superpower tensions while imposing inflexibility upon the President in superpower negotiations.

3. A civil defense program might generate societal divisiveness in that the program would result in unequal protection to a population facing unprecedented disaster. Ethnic groups would compete for urban shelter spaces; cities and urban evacuees would be viewed as depleters of farmers' stocks, etc.

4. A US civil defense program could damage our relations with our allies. They might interpret the program as an inward turn which abandons non-Americans to die in the nuclear holocaust. It might also convince our allies that we see war as survivable and more likely. Such developments could set up a self-reinforcing action-reaction process which would see increasing American isolation from the world resulting in increased isolation of other nations from the United States.¹⁰⁴

5. The adoption of a US civil defense program might imply that prospects for negotiation with the Soviets are no longer viable.

6. Even a modest American civil defense program could not remain modest. It would necessarily grow into a major program, heightening many of the social and political problems mentioned above and necessitating the expenditure of huge sums of money. It is doubtful that Americans would be favorably disposed to support such an expensive program over a long period of time.¹⁰⁵

The third and final recommendation to be drawn from the analysis in this essay is that the United States must continue to modernize its strategic nuclear (and conventional) forces in order to maintain the credibility of our deterrent in the face of dynamic technological and political environments. As long as the United States can threaten the continued superpower status and political integrity of the USSR, that state will be deterred. A more explicit linkage of the US deterrent to the Soviet Union's industrial base (with the collateral political effects discussed by Guertner) would allow the United States to maintain the credibility of its deterrent at a relatively low cost. Furthermore, the United States would not need to rely upon such destabilizing systems as the Trident submarine and C-4 SLBM, MX missiles, cruise missiles, and the NS-20 guidance system. Apart from their substantial costs, they have counterforce capabilities and are certain to evoke in the Soviets the same counterforce fears with which we view them.¹⁰⁶ These systems make verification difficult in the extreme and will diminish the possibility of achieving successful future arms control agreements with the Soviets. The increasing lethality of US and Soviet weapons systems, coupled with increasing weapons costs,

hostility, and superpower insecurity will do little to enhance US economic well-being, alliance solidarity, or ultimately, national security.

ENDNOTES

1. Daniel Yergin, *Shattered Peace: The Origin of the Cold War and the National Security State*, Boston: Houghton-Mifflin, 1977.
2. The members of "Team B" included Richard Pipes, Professor of Russian History at Harvard; Thomas W. Wolfe of the RAND Corporation; Lieutenant General Daniel O. Graham, retired former head of the Defense Intelligence Agency; Paul D. Wolfowitz of the Arms Control and Disarmament Agency; Paul H. Nitze, former Deputy Secretary of Defense; General John Vogt, USAF Retired, and Professor William Van Cleave of the University of Southern California.
3. See George Kennan, *American Diplomacy, 1900-1950*, Chicago: University of Chicago Press, 1951; and John Spanier, *American Foreign Policy Since World War II*, New York: Praeger, 1976.
4. V. I. Lenin, *Collected Works*, Moscow: Progress Publishers, 1964, p. 219.
5. Cited in Leon Goure, *War Survival in Soviet Strategy*, Coral Gables: Center for Advanced International Studies, University of Miami, 1976, p. xx.
6. A. A. Grechko, *The Armed Forces of the Soviet State*, Moscow: Progress Publishers, 1975, p. 347.
7. Cited Goure, 1976, p. xx.
8. Leonid Brezhnev, cited in Leon Goure, "Soviet Military Doctrine," *Air Force Magazine*, March 1977, p. 47.
9. Foy Kohler, et. al., *Soviet Strategy for the Seventies*, Coral Gables: Center for Advanced International Studies, University of Miami, 1973, p. 187.
10. Leonid Brezhnev, cited in Goure, 1976, p. 33.
11. A. A. Grechko, cited in Goure, 1976, p. 32.
12. Henry Kissinger, cited in Michael Howard, ed., *The Theory and Practice of War*, London: International Institute for Strategic Studies, 1965, p. 291.
13. Richard Pipes, "The Soviet Strategy for Nuclear Victory," *Commentary*, July 1977, pp. 21-34.
14. Goure, 1976.
15. T. K. Jones, *Industrial Survival and Recovery After a Nuclear Attack: A Report to the Joint Committee on Defense Production*, US Congress, Seattle: The Boeing Aerospace Co., November 1976, p. 84.
16. See David Bender, "New CIA Estimate Finds Soviet Seeks Superiority in Arms," *The New York Times*, December 26, 1976, p. 1.
17. Pipes, 1977.
18. In Leon Goure, F. D. Kohler, and M. L. Harvey, eds., *The Role of Nuclear Forces in Current Soviet Strategy*, Coral Gables: University of Miami, 1974, p. 60.
19. Goure, 1976, p. 2.
20. For studies citing the effectiveness of Soviet civil defense programs, see Leon Goure, (a) "Another Interpretation," *Bulletin of the Atomic Scientists*, April 1978, (b) *Shelter and Soviet War Survival Strategy*, Coral Gables: University of Miami, 1978, and numerous other studies cited herein. Leon Goure is the most prolific of those writing about the effectiveness of Soviet civil defense. See also, T. K. Jones, (a) *Effect of Evacuation and Sheltering on Potential Fatalities from a Nuclear Exchange*, Seattle: The Boeing Aerospace Co., 1977; (b) *Defense Industrial Base: Industrial Preparedness and Nuclear War Survival*, Testimony Before Joint Committee on Defense Production, Part I, November 17, 1976; G. R. Denny, "The Implications of Soviet Civil Defense," Technical Report Distributed by Defense

Technical Information Center, Alexandria, VA: May 1979; William O. Staudenmaier, *Implications of Civil Defense for the US-USSR Strategic Nuclear Balance* (Strategic Issues Research Memorandum), Carlisle Barracks: Strategic Studies Institute, April 30, 1978; and Harriet Fast Scott, "Civil Defense in the Soviet Union," *Air Force Magazine*, August 1976.

Studies and essays which are skeptical of the effectiveness of the Soviet civil defense program include US Arms Control and Disarmament Agency, *An Analysis of Civil Defense in Nuclear War*, Washington: December 1978 (herein referred to as the ACDA study); Central Intelligence Agency, Office of the Director, *Soviet Civil Defense* (NI-78-1000 3), July 1978 (herein referred to as the CIA study); Oak Ridge National Laboratory, translation of *Grazhdanskaya Oborona* (Civil Defense), 1974; Fred Kaplan "The Soviet Civil Defense Myth" (Parts I and II), *Bulletin of the Atomic Scientists*, March and April 1978; Robert Kennedy, "The Strategic Balance in Transition," in *Soviet Armed Forces Review Annual*, edited by David Jones, Gulf Breeze, FL: Academic International Press, 1980; Les Aspin, "Review of 'Soviet Civil Defense'" (CIA study), *Bulletin of the Atomic Scientists*, February 1979; and Ed Zuckerman, "Hiding from the Bomb Again," *Harper's*, August 1979.

21. Cited in Eugene Wigner, ed., *Who Speaks for Civil Defense?*; New York: Charles Scribner and Sons, 1968, p. 52.

22. Bender, 1976; Goure, 1976; Pipes, 1977; Paul Nitze, "Assuring Strategic Equality in an Era of Detente," *Foreign Affairs*, January 1976. See also, R. J. Rummel, "Will the Soviet Union Soon Have a First Strike Capability?," *Orbis*, Fall 1976, and "Is Strategic Deterrence Collapsing?," Unpublished Manuscript, University of Hawaii, June 10, 1979.

23. For scenarios which might lead to US concessions, see Jones, *Effect of Evacuation*, 1976, p. 126; Donald Rumsfeld, *Annual Report to Congress, Fiscal Year 1978*, Department of Defense, p. 107; Kaplan, 1979, p. 15.

24. See Office of Technology Assessment, US Congress, *The Effects of Nuclear War*, Washington: US Government Printing Office, 1979, and Harry Yoshpe, *Our Missing Shield: The US Civil Defense Program in Historical Perspective* (prepared for the Federal Emergency Management Agency, Contract No. 01-79-C-0294), April 1981.

25. CIA study, p. 4.

26. Office of Technology Assessment, p. 140.

27. John Collins, *US-Soviet Military Balance*, New York: McGraw-Hill, 1980, pp. 174-175.

28. *Ibid.*, p. 175.

29. James Schlesinger, *Annual Defense Department Report*, FY 1975, p. 54.

30. Cited in Yoshpe, pp. 458-459.

31. Harold Brown, "Civil Defense—The New Debate," *Worldview*, Vol. 22, Nos. 1-2, January 1979, p. 46.

32. PD 41 was issued on September 29, 1978 with the goal of enhancing deterrence by means of increasing the number of Americans who would survive a nuclear attack (through crisis relocation planning) and ensuring greater continuity of government in the event that deterrence fails. PD 58, issued August 1980, addresses the issue of continuity of government by outlining evacuation plans and procedures for the leading 16 Federal officials during times of heightened tensions.

33. In addition to the sources cited in Note 20, others who challenge the effectiveness of the Soviet civil defense and deal with its effects upon deterrence

include S. Drell and F. Von Hippel, "Limited Nuclear War," *Scientific American*, Vol. 235, No. 5, November 1976, pp 27-37; Gary Guertner, "Strategic Vulnerability of a Multinational State: Deterring the Soviet Union," *Political Science Quarterly* 96, Summer, 1981, pp. 209-233; and William Kincade, "Repeating History: The Civil Defense Debate Renewed," *International Security*, Winter, 1978, pp. 99-120.

34. Besides the ACDA and CIA studies, see also National Academy of Sciences, *Long-Term Worldwide Effects of Multiple Nuclear Weapons Detonations*, Washington: 1975.

35. A. Broyles, E. Wigner (pro) and S. Drell (con), "Civil Defense in Limited War: A Debate," *Physics Today*, April 1976, pp. 44-57; Denny, Goure, Jones, and Scott cited above.

36. The Soviets have repeatedly argued that the protection of all Soviet citizens is the primary responsibility of its civil defense program. See Altunin, 1976. This orientation is consistent with the explanations of the Soviet civil defense program below.

37. CIA study.

38. *Ibid.*, and ACDA study, Kaplan, and Oak Ridge.

39. Oak Ridge Laboratory, p. vii.

40. Jones, 1976, pp. 7, 10.

41. Goure, 1976, pp. 3, 125, 177.

42. *Ibid.*, pp. 3, 11, 77-119.

43. Kincade, Kennedy, CIA and ACDA.

44. Kaplan and Goure, 1976, pp. 114, 118.

45. Keith A. Dunn, *Soviet Military Weakness and Vulnerabilities: A Critique of the Short War Advocates* (Strategic Issues Research Memorandum), Carlisle Barracks: Strategic Studies Institute, July 31, 1978, p. 12.

46. Jones, 1976.

47. See "Can Billions Buy Survival in an Atomic War?," *US News and World Report*, October 8, 1979, pp. 51-52.

48. General A. Altunin, "The Main Direction," *Voyennye Znaniia*, Moscow, October 1976, pp. 129-160.

49. CIA study, pp. 3, 10 and ACDA study.

50. CIA study, p. 10.

51. *Ibid.*

52. ACDA study, p. 11.

53. *Ibid.*

54. Oak Ridge, pp. 50-54.

55. US Joint Committee on Defense Production, *Civil Preparedness Review, Part II: Industrial Defense and Nuclear Attack*, April 1977, pp. 20, 68.

56. Kincade.

57. Jones, 1976, p. 7.

58. ACDA, p. 5.

59. See Kincade, Kaplan, and Guertner.

60. See Geoffrey Kemp, *Nuclear Forces for Medium Powers*, Part II, Adelphi Paper No. 107, London: International Institute for Strategic Studies, 1976, pp. 5, 9.

61. Richard Garwin, Testimony Before Joint Committee on Defense Production, *Civil Preparedness and Limited Nuclear War*, April 28, 1976, p. 55.

62. ACDA, p. 5.

63. Jones, 1976, p. 84.

64. See ACDA and National Academy of Sciences studies.
65. Earl Rubenking, "The Soviet Tractor Industry: Progress and Problems," *Soviet Economy in a New Perspective*, US Congress Joint Economic Committee, October 14, 1976, p. 55.
66. CIA study, p. 13.
67. ACDA, pp. 1, 2.
68. CIA, p. 12.
69. ACDA study.
70. *Ibid.*, pp. 1, 2.
71. CIA study, p. 4.
72. See Kennedy, Guertner and Kincade.
73. Pipes, 1977.
74. Kennedy, pp. 367-368.
75. See Kennedy, pp. 356-357. Also, see Fritz Ermarth, "Contrasts in American and Soviet Strategic Thought," *International Security*, Fall, 1978; Robert Levgold, "Strategic 'Doctrine' and SALT: Soviet and American Views," *Survival*, January-February 1979, pp. 8-13; and Raymond Garthoff, "Mutual Deterrence and Strategic Arms Limitations in Soviet Policy," *International Security*, Summer, 1978, pp. 113-125.
76. See Paul Cook, *The Soviet Conglomerate*, Special Report No. 67, Washington: State Department Bureau of Public Affairs, September 11, 1979; Murray Feshbach, "Population and Manpower Trends in the USSR," *The USSR and the Sources of Soviet Policy*, Washington: The Council on Foreign Relations and the Kennan Institute, 1978; and Hugh Seton-Watson, "The Last of the Empires," *The Washington Quarterly*, Vol. 3, No. 2, Spring 1980, pp. 41-46.
77. Desmond Ball, "Soviet ICBM Deployment," *Survival*, 22, July-August 1980, pp. 167-170.
78. Guertner, 1981.
79. Adam Ulam, *Expansion and Coexistence: Soviet Foreign Policy 1917-1973*, 2d ed., New York: Praeger, 1974, pp. 663-664.
80. See Keegan, Bender, Rummel, Pipes, Jones, and Denny.
81. See Colin Gray, *Force Postures, Arms Races, and the Future of SALT*, Address Before the University of Southern California/US Army Russian Institute Symposium, Garmisch, West Germany, December 1978.
82. Pipes, pp. 30-31.
83. E.g., see *Pravda*, March 13, 1954.
84. See Henry Trofimenko, "The 'Theology' of Strategy," *Orbis*, Fall, 1977, pp. 498-500, 510; also, see Kennedy, p. 356; Levgold, pp. 8-13; Collins, p. 116; William Lee, "Soviet Military Policy, Objectives, and Capabilities," *Air Force Magazine*, March 1979, pp. 56, 59; and Ermarth, 1978.
85. Collins, p. 116; and Ben Lambeth, *How to Think About Soviet Military Doctrine*, Santa Monica: The RAND Corporation, February 1978, pp. 4, 6-8.
86. See Kennedy, pp. 356-357; Lambeth; Lee; Collins, p. 118; Trofimenko.
87. Dennis Ross, "Rethinking Soviet Strategic Policy: Inputs and Implications," *The Journal of Strategic Studies*, May 1978, p. 9; see also, Collins, pp. 115-120. Daniel Papp, "Soviet Perceptions of the Strategic Balance," *Air University Review*, Vol. 32, No. 2, January-February 1981, pp. 2-17, for an evaluation of Soviet attitudes toward deterrence which draws different conclusions than Ross, Kennedy, and Garthoff.

88. Ross, p. 6.
89. Kennedy, p. 357.
90. See Guertner; Kincade; ACDA, p. 5; Garwin, p. 55; and Kemp, Part II, pp. 5-9.
91. Cited Horelich and Rush, p. 92.
92. Cited Goure, 1976, p. 33.
93. Cited Goure, 1976, p. 32.
94. Cited in William Chipman, *Civil Defense for the 1980's/Current Issues*, Washington: Defense Civil Preparedness Agency, July 13, 1979, pp. 61-62.
95. Kennedy, p. 357.
96. V. D. Sokolovskiy, *Soviet Military Strategy* (ed. 3, Harriet Fast Scott, ed.), New York: Crane, Russak, 1975, p. 329.
97. For a discussion of the different levels of threat faced by the United States and the Soviet Union, see Robert Kennedy, "SALT: The Problems of Arms Control," unpublished manuscript, Carlisle Barracks: Strategic Studies Institute, 1981, pp. 4-6; see *Pravda*, January 19 and February 23, 1977, and April 26, 1978, for discussions of the Soviets' desire for "equal security."
98. It is questionable to treat nuclear attacks by England, France, and China against the Soviet Union as "limited" since their composite capabilities are sufficient to destroy every Soviet city with a population greater than 100,000. See Kennedy, 1981, p. 6.
99. Lee, 1979.
100. See Yoshpe, 1981; Zuckerman, 1979; CIA; NAS; and Ken Englade, "Surviving the Bomb," *Atlanta Weekly Magazine*, August 16, 1981.
101. ACDA, p. 13.
102. Nevertheless, much attention in the United States is beginning to focus upon active defenses (e.g., interview with General (Retired) George Keegan on National Public Radio, "All Things Considered," November 3, 1981) and the inadequacy of a deterrent policy based upon mutual vulnerability. See, for example, Keith Payne and Neil Pickett, "Vulnerability is Not an Adequate Strategy," *Military Review*, No. 10, October 1981, pp. 66-72 and S. Rossen, "Nuclear Arms Strategic Defense," *The Washington Quarterly*, Spring, 1981, pp. 81-99.
103. Arthur Washow, "The Shelter-Centered Society," *Scientific American*, Vol. 206, No. 6, May 1962, pp. 46-51.
104. The credibility of America's commitment to risk annihilation in the defense of Europe has long been a matter of concern and debate. DeGaulle questioned its credibility two decades ago. European fears were not lessened by the Nixon Administration's continued postponement of the "Year of Europe" or former Secretary of State Kissinger's acknowledgement of certain scenario dependent divergences between European-American security interests. In "The Future of NATO," *The Washington Quarterly*, pp. 1, 7, Kissinger shocked NATO members when he noted:

...it is absurd to base the strategy of the West on the credibility of the threat of mutual suicide. [NATO should not rely too strongly on] strategic assurances that [America] cannot possibly mean, or if we do mean, we shouldn't want to execute, because if we do execute then we risk the destruction of our civilization.

The Europeans currently perceive a dangerous willingness of the United States to fight a war in Europe. See, for instance, "Europe's Fear of Frying," *The New York Times*, October 25, 1981, p. 18E, and Walter Lacquer, "America's Fissuring Alliance," *The New York Times*, October 25, 1981, p. 19E.

105. See Kennedy, 1981, and George Kennan, "Two Views on the Soviet Problem," *The New Yorker*, November 2, 1981, pp. 54-62.

106. See Robert Aldridge, *The Counterforce Syndrome: A Guide to US Nuclear Weapons and Strategic Doctrine*, Washington: Institute for Policy Studies, 1979 (revised second printing).

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